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NEXT REVIEW DATE: _____

AUTH: _____

2 May 1955

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DATE: *8/10/61* REVIEWER: 037169

MEMORANDUM FOR: THE RECORD

SUBJECT : Project Monitor; Contract RD-29 s.a.
 R.O.#5 P-60B, Night Landing System, U.V.
 R.O.#6,7 P-102, P-103, Transducer, Actuator Index
 R.O.#8,15 P-109, Contact Microphone
 R.O.#10 P-93, Communication System VLF
 R.O.#11 P-155, Recorder, Subminiature

1. Time and Place of Meeting: The meeting was held at _____
 _____ 27-29 April 1955.

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2. Attendance:

P-60B
 P-109, P-93
 P-109, P-93
 P-155 All Projects
 P-155 All Projects
 P-60B
 P-102, P-103
 P-102, P-103

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3. Purpose of Meeting: The meeting was held to review the past months work and to outline future work on all projects.

4. Discussion:

a. P-60B, Night Landing System, U.V.

About a dozen reconditioned autocollimators were field tested at ranges from 2,000 to 2,900 feet using a 400 watt mercury arc ultra-violet source. The source used had a beam width of more than 90°x. The filter used was a Zeiss Jena UG-4, visible security 29 ft. plus.

The weather was good and visibility was excellent. The city lights of _____ 8 miles distant were clearly visible and did not twinkle.

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The autocollimators were visible out to 2,900 feet which, however, appeared to be about the useful limit of range. Several autocollimators failed because of lack of proper optical focus. Discussion later disclosed that defocussing was caused by movement of the phosphor target and that this fault had appeared in many of the units before they were reconditioned.

It was recommended that _____ check all of the autocollimators on the 60 cps shake table for 5 minutes in an attempt to determine if such vibration affects focussing. If it appears that a sizeable

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fraction of the units are adversely affected, some improvement will have to be made in the set screw-and-sleeve method of holding the targets which is now being used. [] will notify APD of the results of the vibration tests before taking any further action.

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b. P-102, 103, Transducer and Actuator Index.

[] is presently completing work on the five sets of 4500 index cards and the final report-instruction manual.

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File boxes to hold the cards are being designed. It was found necessary to buy five shake tables, one for each index. The shake tables are used to facilitate separation of the cards after a pick has been made. The design of the file boxes is also dependent on ease of using the picks and ease of separating the cards after a pick.

In the present scheme a rack is mounted on top of the shake table. The file drawer containing the cards slides into position suspended from the rack. The file drawer has two precision separators which act as guides for the picks. The front and rear of the drawers have similar guides. To ease the system the separators are used to compress the file cards, the picks are inserted in the proper codes, the bottom of the drawer is opened, and the shaker is used to shake loose the cards of interest which drop out of the bottom of the file drawer.

Difficulties were being experienced in arranging the separators, cards and guides so that the picks could be easily inserted. It was suggested that the file drawer tolerances be decreased and that the drawer be tipped and shaken before inserting the picks so that the cards would align in the "V" formed by one side and the bottom of the drawers. It was suggested that the arrangements for opening the bottom of the drawer be improved.

[] will build 5 file cabinets for 6 drawers each. [] will also build 30 drawers, half of which will be full of cards, half empty.

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c. P-109, Contact Microphone.

No work has been done under the new task as yet since all personnel were removed from the project during the recent contractual delay.

Southwest was provided with:

- (1) Specifications for Contact Mike
- (2) Circuit diagram of the Baird Kit Amplifier
- (3) An opportunity to examine the Baird Kit Amplifier
- (4) Noise data on the Baird Kit Amplifier

[] agreed to deliver 12 preliminary prototypes of a Rochelle crystal unit as soon as possible. APD will receive a letter giving the exact date. This is the best unit [] has built to date. A similar unit was checked with the Baird amplifier. It was possible to detect speech through a two inch wooden door (in a very noisy building) but the speech was not intelligible. The signal from the unit easily overrode any amplifier noise.

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[] will concentrate on a study of walls, their transmission and noise characteristics and a correlation of [] data on these things with similar data from the literature. An optimum frequency response curve will be determined.

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A cursory examination of other types of transducers than crystal will be continued. Of interest are the dynamic, variable reluctance and electronic-mechanical types.

Work will recommence about 2 May 1955.

d. P-93, Communication System VLF.

[] demonstrated a system at a range of 1 mile, CW, 32KC using probe speeds of 100 meters. The transmitter input power into the probes was 30 watts. Probe impedance was about 30 ohms. Both an [] receiver and Stoddart Field Strength Meter were used as receivers. Reception was RST 479 with some trouble from static bursts.

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The [] receiver consisted of an r.f. amplifier, a Q-multiplier, two R-C coupled amplifiers and a BFO. Its operation was very unsatisfactory due to poor construction and design.

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[] will have completed a complete breadboard system (2 units) for demonstration on 27 May. The purpose of the demonstration will be to prove out the [] circuit designs. Final packaging and miniaturization is not required.

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e. P-155, Recorder, Subminiature.

[] is preparing a final report and a new proposal as previously directed.

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5. Actions:

a. [] will notify APD of the results of the autocollimator vibration test.

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b. APD will give [] a shipping address for the indices, P-102, P-103.

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c. [] will notify APD of the date by which 12 prototypes of a contact microphone can be delivered.

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d. APD will obtain a Baird Kit Amplifier for [] as soon as possible.

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e. [] will complete a VLF breadboard communications system by 27 May 1955.

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[]

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TSS/APD

Distribution:

P-60B - 1 ✓

P-102 - 1 ✓

P-103 - 1

P-93 - 1

P-109 - 1

P-155 - 1

[] - 1

Chrono- 1

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